

In the Claims:

Please cancel claims 1-4 and 11-15 without prejudice or disclaimer; please amend claim 15; and please add claims 16-19.

Claims 1-4 (Cancelled)

Claim 5 (Previously Presented) A method for manufacturing a tantalum oxy nitride capacitor comprising:

forming a lower electrode on a surface of a semiconductor substrate using a material selected from the group consisting of undoped silicon, doped silicon and mixtures thereof;

forming MPS (Metastable Poly Silicon) using gases each containing a silicon source after performing wet etching or dry etching of the lower electrode;

performing a MPS doping in a chamber by using a mixed gas comprising phosphor (P);

depositing a nitride film, in said chamber;

depositing a tantalum oxy nitride thin film using a chemical vapor comprising tantalum on the nitride film;

performing a nitrating or nitrifying of a surface of the tantalum oxy nitride thin film; and

forming an upper electrode by stacking a metal layer on an upper portion of the tantalum oxy nitride thin film,

wherein a gas comprising a silicon source is used in the forming of the MPS and said gas selected from the group consisting of SiH_4 , Si_2H_6 , SiH_2Cl_2 and mixtures thereof.

Claim 6 (Previously Presented) A method for manufacturing a tantalum oxy nitride capacitor comprising:

- forming a lower electrode on a surface of a semiconductor substrate using a material selected from the group consisting of undoped silicon, doped silicon and mixtures thereof;

- forming MPS (Metastable Poly Silicon) using gases each containing a silicon source after performing wet etching or dry etching of the lower electrode;

- performing a MPS doping in a chamber by using a mixed gas comprising phosphor (P);

- depositing a nitride film, in said chamber;

- depositing a tantalum oxy nitride thin film using a chemical vapor comprising tantalum on the nitride film;

- performing a nitrating or nitrifying of a surface of the tantalum oxy nitride thin film; and

- forming an upper electrode by stacking a metal layer on an upper portion of the tantalum oxy nitride thin film,

wherein the MPS doping is performed under a pressure ranging from about 1.0×10^{-3} torr to about 500 torr and at a temperature ranging from about 500°C to about 1000°C.

Claim 7 (Previously Presented) A method for manufacturing a tantalum oxy nitride capacitor comprising:

- forming a lower electrode on a surface of a semiconductor substrate using a material selected from the group consisting of undoped silicon, doped silicon and mixtures thereof;

- forming MPS (Metastable Poly Silicon) using gases each containing a silicon source after performing wet etching or dry etching of the lower electrode;

- performing a MPS doping in a chamber by using a mixed gas comprising phosphor (P);

- depositing a nitride film, in said chamber;

- depositing a tantalum oxy nitride thin film using a chemical vapor comprising tantalum on the nitride film;

- performing a nitrating or nitrifying of a surface of the tantalum oxy nitride thin film; and

forming an upper electrode by stacking a metal layer on an upper portion of the tantalum oxy nitride thin film,
wherein the mixed gas comprising phosphor (P) is a mixed gas comprising PH_3 .

Claim 8 (Previously Presented) A method for manufacturing a tantalum oxy nitride capacitor comprising:

forming a lower electrode on a surface of a semiconductor substrate using a material selected from the group consisting of undoped silicon, doped silicon and mixtures thereof;

forming MPS (Metastable Poly Silicon) using gases each containing a silicon source after performing wet etching or dry etching of the lower electrode;

performing a MPS doping in a chamber by using a mixed gas comprising phosphor (P);

depositing a nitride film, in said chamber;

depositing a tantalum oxy nitride thin film using a chemical vapor comprising tantalum on the nitride film;

performing a nitrating or nitrifying of a surface of the tantalum oxy nitride thin film; and

forming an upper electrode by stacking a metal layer on an upper portion of the tantalum oxy nitride thin film,

wherein the mixed gas comprising phosphor (P) is selected from the group consisting of PH_3/N_2 , PH_3/H_2 , PH_3/SiH_4 , PH_3/Ar and mixtures thereof.

Claim 9 (Previously Presented) A method for manufacturing a tantalum oxy nitride capacitor comprising:

forming a lower electrode on a surface of a semiconductor substrate using a material selected from the group consisting of undoped silicon, doped silicon and mixtures thereof;

forming MPS (Metastable Poly Silicon) using gases each containing a silicon source after performing wet etching or dry etching of the lower electrode;

performing a MPS doping in a chamber by using a mixed gas comprising phosphor (P);

depositing a nitride film, in said chamber;

depositing a tantalum oxy nitride thin film using a chemical vapor comprising tantalum on the nitride film;

performing a nitrating or nitrifying of a surface of the tantalum oxy nitride thin film; and

forming an upper electrode by stacking a metal layer on an upper portion of the tantalum oxy nitride thin film,

wherein the nitride depositing is performed by using ammonia (NH₃) gas and wherein the nitride depositing is performed under a pressure ranging from about 0.1 torr to about 200 torr and at a temperature ranging from about 600°C to about 850°C.

Claims 10-14 (Cancelled)

Claim 15 (Currently Amended) A semiconductor device comprising a capacitor made in accordance with the method of claim 5.

Claim 16 (Presently Presented) A semiconductor device comprising a capacitor made in accordance with the method of claim 6.

Claim 17 (Presently Presented) A semiconductor device comprising a capacitor made in accordance with the method of claim 7.

Claim 18 (Presently Presented) A semiconductor device comprising a capacitor made in accordance with the method of claim 8.

Claim 19 (Presently Presented) A semiconductor device comprising a capacitor made in accordance with the method of claim 9.